

What is claimed is:

1. A method of controlling the migration of formation sand in a well bore and increasing surface area for well production comprising the steps of:
 - (a) hydrojetting at least one slot into a zone along a well bore; and,
 - (b) placing a consolidation material comprising particulates into the slot.
2. The method of claim 1 further comprising the step of, after step (b):
 - (c) placing and expanding an expandable screen in the isolated zone of the well bore.
3. The method of claim 1 wherein the consolidation material comprises a resin.
4. The method of claim 3 wherein the resin consolidation material comprises a hardenable resin component comprising a hardenable resin and a hardening agent component comprising a liquid hardening agent, a silane coupling agent, and a surfactant.
5. The method of claim 4 wherein the hardenable resin in the liquid hardenable resin component is an organic resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolak resin, polyester resin, phenol-aldehyde resin, urea-aldehyde resin, furan resin, urethane resin, glycidyl ethers, or mixtures thereof.
6. The method of claim 4 wherein the liquid hardening agent in the liquid hardening agent component comprises amines, aromatic amines, aliphatic amines, cyclo-aliphatic amines, piperidine, triethylamine, benzyldimethylamine, N,N-dimethylaminopyridine, 2-(N₂N-dimethylaminomethyl)phenol, tris(dimethylaminomethyl)phenol, or mixtures thereof.
7. The method of claim 4 wherein the silane coupling agent in the liquid hardening agent component comprises N-2-(aminoethyl)-3-aminopropyltrimethoxysilane, 3-glycidoxypropyltrimethoxysilane, n-beta- (aminoethyl)-gamma-aminopropyl trimethoxysilane or mixtures thereof.
8. The method of claim 4 wherein the surfactant in the liquid hardening agent component comprises ethoxylated nonyl phenol phosphate ester, mixtures of one or more cationic surfactants, a C₁₂ – C₂₂ alkyl phosphonate surfactant, one or more non-ionic surfactants and an alkyl phosphonate surfactant, or mixtures thereof.
9. The method of claim 4 wherein the resin consolidation material is a furan-based resin comprising furfuryl alcohol, a mixture furfuryl alcohol with an aldehyde, a mixture of furan resin and phenolic resin or mixtures thereof.

10. The method of claim 4 further comprising a solvent comprising 2-butoxy ethanol, butyl acetate, furfuryl acetate, or mixtures thereof.

11. The method of claim 3 wherein the resin consolidation material is a phenolic-based resin comprising terpolymer of phenol, phenolic formaldehyde resin, a mixture of phenolic and furan resin, or mixtures thereof.

12. The method of claim 11 further comprising a solvent comprising butyl acetate, butyl lactate, furfuryl acetate, 2-butoxy ethanol, or mixtures thereof.

13. The method of claim 3 wherein the resin consolidation material is a HT epoxy-based resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolac resin, polyester resin, glycidyl ethers, or mixtures thereof.

14. The method of claim 13 further comprising a solvent comprising dimethyl sulfoxide, dimethyl formamide, dipropylene glycol methyl ether, dipropylene glycol dimethyl ether, dimethyl formamide, diethylene glycol methyl ether, ethylene glycol butyl ether, diethylene glycol butyl ether, propylene carbonate, d'limonene, fatty acid methyl esters, or mixtures thereof.

15. The method of claim 1 wherein the consolidation material comprises a tackifying material.

16. The method of claim 15 wherein the tackifying consolidation material is a polyamide, polyesters, polycarbonates, polycarbamates, natural resins, or combinations thereof.

17. The method of claim 2 wherein the well bore comprises a cased well bore.

18. The method of claim 17 wherein the size of the openings in the expandable screen is smaller than the average size of particulate used.

19. The method of claim 2 wherein the well bore comprises an uncased well bore.

20. The method of claim 17 wherein the size of the openings in the expandable screen is smaller than both the average size of particulate used and the average size of the formation sands.

21. A method of increasing production from a zone along a well bore comprising the steps of:
- (a) hydrajetting at least one slot into the zone along the well bore; and,
 - (b) placing a consolidation material comprising particulates into the slot.
22. The method of claim 1 further comprising the step of, after step (b):
- (c) placing and expanding an expandable screen in the isolated zone of the well bore.
23. The method of claim 21 wherein the consolidation material comprises a resin.
24. The method of claim 23 wherein the resin consolidation material comprises a hardenable resin component comprising a hardenable resin and a hardening agent component comprising a liquid hardening agent, a silane coupling agent, and a surfactant.
25. The method of claim 24 wherein the hardenable resin in the liquid hardenable resin component is an organic resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolak resin, polyester resin, phenol-aldehyde resin, urea-aldehyde resin, furan resin, urethane resin, glycidyl ethers, or mixtures thereof.
26. The method of claim 24 wherein the liquid hardening agent in the liquid hardening agent component comprises amines, aromatic amines, aliphatic amines, cycloaliphatic amines, piperidine, triethylamine, benzyldimethylamine, N,N-dimethylaminopyridine, 2-(N,N-dimethylaminomethyl)phenol, tris(dimethylaminomethyl)phenol, or mixtures thereof.
27. The method of claim 24 wherein the silane coupling agent in the liquid hardening agent component comprises N-2-(aminoethyl)-3-aminopropyltrimethoxysilane, 3-glycidoxypropyltrimethoxysilane, n-beta- (aminoethyl)-gamma-aminopropyl trimethoxysilane or mixtures thereof.
28. The method of claim 24 wherein the surfactant in the liquid hardening agent component comprises ethoxylated nonyl phenol phosphate ester, mixtures of one or more cationic surfactants, a C₁₂ – C₂₂ alkyl phosphonate surfactant, one or more non-ionic surfactants and an alkyl phosphonate surfactant, or mixtures thereof.
29. The method of claim 24 wherein the resin consolidation material is a furan-based resin comprising furfuryl alcohol, a mixture furfuryl alcohol with an aldehyde, a mixture of furan resin and phenolic resin or mixtures thereof.

30. The method of claim 24 further comprising a solvent comprising 2-butoxy ethanol, butyl acetate, furfuryl acetate, or mixtures thereof.

31. The method of claim 23 wherein the resin consolidation material is a phenolic-based resin comprising terpolymer of phenol, phenolic formaldehyde resin, a mixture of phenolic and furan resin, or mixtures thereof.

32. The method of claim 31 further comprising a solvent comprising butyl acetate, butyl lactate, furfuryl acetate, 2-butoxy ethanol, or mixtures thereof.

33. The method of claim 23 wherein the resin consolidation material is a HT epoxy-based resin comprising bisphenol A-epichlorohydrin resin, polyepoxide resin, novolac resin, polyester resin, glycidyl ethers, or mixtures thereof.

34. The method of claim 33 further comprising a solvent comprising dimethyl sulfoxide, dimethyl formamide, dipropylene glycol methyl ether, dipropylene glycol dimethyl ether, dimethyl formamide, diethylene glycol methyl ether, ethylene glycol butyl ether, diethylene glycol butyl ether, propylene carbonate, d'limonene, fatty acid methyl esters, or mixtures thereof.

35. The method of claim 21 wherein the consolidation material comprises a tackifying material.

36. The method of claim 35 wherein the tackifying consolidation material is a polyamide, polyesters, polycarbonates, polycarbamates, natural resins, or combinations thereof.

37. The method of claim 22 wherein the well bore comprises a cased well bore.

38. The method of claim 37 wherein the size of the openings in the expandable screen is smaller than the average size of particulate used.

39. The method of claim 22 wherein the well bore comprises an uncased well bore.

40. The method of claim 37 wherein the size of the openings in the expandable screen is smaller than both the average size of particulate used and the average size of the formation sands.